

HP 3PAR Host Explorer 2.1.0 Software User Guide

Abstract

This document provides the information about installing, configuring, and using the HP 3PAR Host Explorer Software for Solaris Sparc, Red Hat Linux, and Microsoft Windows administrators who are responsible for maintaining the operating environment and HP 3PAR StoreServ Storage system.

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Introduction

This guide provides information about installing and uninstalling the HP 3PAR Host Explorer on the following platforms:

- Microsoft Windows Server 2003 and 2008, 32 bit and 64 bit
- Red Hat Linux systems running RHEL 4 Update 6 or later; RHEL 5 and RHEL 6
- Sparc systems running Solaris 10

This guide is for Microsoft Windows, Red Hat Enterprise Linux, and Oracle Solaris (Sparc) administrators who are responsible for maintaining the operating environment and who understand the HP 3PAR StoreServ Storage system. Also, this guide provides reference information on the Command Line Interface (CLI) utility `TpdHostAgent`, which allows management of the HP 3PAR Host Explorer on the hosts.

1.1 HP 3PAR Host Explorer

The HP 3PAR Host Explorer is a program that runs on a host connected to an HP 3PAR StoreServ Storage system. The Host Explorer is an agent that runs as a service on Windows and as a daemon on Linux and Solaris operating systems. No license is required to use the HP 3PAR Host Explorer.

The Host Explorer communicates with the storage system over an FC or iSCSI connection and enables the host to send detailed host configuration information to the storage system. The information gathered from the Host Explorer is visible for uncreated hosts and assists with host creation and diagnosing host connectivity issues.

When a host is created on the storage system, unassigned WWNs or iSCSI names are presented to the storage system. Without the Host Explorer running on the attached hosts, the storage system is unable to determine which host the WWN or iSCSI names belongs to and you must manually assign each WWN or iSCSI name to a host. With Host Explorer running, the storage system automatically groups WWNs or iSCSI names for the host together, assisting with creating the host.

The Host Explorer collects the following information and sends it to the storage system:

- Host operating system and version.
- Fibre Channel and iSCSI HBA details.
- Multipath driver and current multipath configuration.
- Cluster configuration information.
- Device and path Information.

See [Chapter 2, *Installation and Deinstallation*](#) to install the HP 3PAR Host Explorer.

Refer to the *HP 3PAR OS Configuration Matrix* for a list of supported host operating systems.

1.2 Related Documentation

The following documents also provide information related to HP 3PAR StoreServ Storage systems and the HP 3PAR OS:

For information about...	Read the...
Supported hardware and software platforms	<i>The Single Point of Connectivity Knowledge for HP Storage Products (SPOCK) website:</i> http://www.hp.com/storage/spock
Locating HP 3PAR documents	<i>The HP 3PAR product website:</i> http://www.hp.com/go/3par
HP 3PAR StoreServ Storage system concepts and terminology	<i>HP 3PAR StoreServ Storage Concepts Guide</i>
Detailed HP 3PAR Command Line Interface (CLI) descriptions and usage	<i>HP 3PAR Command Line Interface Reference</i>

For information about...	Read the...
Using the HP 3PAR Command Line Interface (CLI) to configure and administer storage systems	<i>HP 3PAR Command Line Interface Administrator's Manual</i>
Using the HP 3PAR Management Console (GUI) to configure and administer HP 3PAR StoreServ Storage systems	<i>HP 3PAR Management Console Online Help</i>

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Installation and Deinstallation

This chapter describes how to install, verify, and deinstall the HP 3PAR Host Explorer agent on the following platforms:

- Microsoft Windows Server 2003 and 2008, 32-bit and 64-bit
- Red Hat Linux systems running RHEL 4 Update 6 or later; RHEL 5 and RHEL 6
- Sparc systems running Oracle Solaris 10



NOTE: In order for the HP 3PAR StoreServ Storage system to dynamically discover host devices, you must follow specific configuration instructions for the host operating system and HBA. See the HP 3PAR Implementation Guides for recommended practices and detailed configuration information about using your specific host devices with the storage system.



NOTE: Each host connected to the HP 3PAR StoreServ Storage system must use a host persona with the SCSI Enclosure Services LUN (SESLun) enabled, or the Host Explorer agent cannot communicate with the HP 3PAR StoreServ Storage system. If you upgraded from a version of the HP 3PAR OS released before 2.3.1, you must convert your legacy personas to new host personas. For information about configuring host personas, see the *HP 3PAR Command Line Interface Administrator's Manual* or the *HP 3PAR Management Console Online Help*.

2.1 Installation and Verification

This section describes how to install and verify installation of the HP 3PAR Host Explorer agent on the following systems. You must have the *HP 3PAR Host Explorer <Version> Software CD* (current version) to install the HP 3PAR Host Explorer.

2.1.1 Installation on Microsoft Windows Server Systems

To install the Host Explorer agent on a Microsoft Windows Server 2003 or 2008 system:

- 1 Log into the host as the System Administrator.
- 2 Insert the **HP 3PAR Host Explorer** CD into a CD-ROM drive.
- 3 Open a Windows Explorer window.
- 4 Select **Start > All Programs > Accessories > Windows Explorer**.
- 5 Double-click the CD-ROM drive to expand the files.
- 6 Double-click the appropriate file:
 - ◆ For x86-32 platforms: HostExplorerX86.msi
 - ◆ For x86-64-bit platforms: HostExplorerX64.msi

2.1.2 Verifying the Installation on Microsoft Windows Server

To verify the installation for the Microsoft Windows Server 2003 or 2008 system:

- 1 Log on as the System Administrator.
- 2 Select **Start > Control Panel > Add/Remove Programs**.
Result: The **Add/Remove Programs** window appears.
- 3 Verify **HP 3PAR Host Explorer for Windows** appears under the **Currently installed programs** column.

2.1.3 Installation on Red Hat Linux Systems

To install the Host Explorer agent on a Red Hat Linux system:

- 1 Log on as the root user.
- 2 Insert the **HP 3PAR Host Explorer** CD into a CD-ROM drive.

- 3 Change directory to the CD-ROM drive.
- 4 Issue the following command:

```
# rpm -ivh HostExplorer-<release_number>.i386.rpm
```

2.1.4 Verifying the Installation on Red Hat Linux Systems

Verify the installation for the Red Hat Linux system:

- 1 Log on as the System Administrator.
- 2 Issue the following command:

```
rpm -qa | grep HostExplorer
```

2.1.5 Installation on Oracle Solaris Sparc Systems

To install the Host Explorer agent on an Oracle Solaris (Sparc) system:

- 1 Log in as the root user.
- 2 Insert the **HP 3PAR Host Explorer** CD into a CD-ROM drive.
- 3 Change to the CD-ROM drive.
- 4 Issue the following command:

```
# pkgadd -d HostExplorer-sparc.pkg
```

2.1.6 Verifying the Installation on Solaris Sparc Systems

Verify the installation for the Red Hat Linux system:

- 1 Log on as the System Administrator.
- 2 Issue the following command:

```
# pkginfo -l HostExplorer
```

2.2 Deinstallation

This section describes how to deinstall the HP 3PAR Host Explorer agent on:

- Microsoft Windows Server 2003 and 2008, 32-bit and 64-bit
- Red Hat Linux systems running RHEL 4 Update 6 or later; RHEL 5 and RHEL 6
- Sparc systems running Oracle Solaris 10

2.2.1 Deinstallation on Microsoft Windows Server

To deinstall the Host Explorer agent from a Microsoft Windows Server 2003 or 2008 system:

- 1 Log on as the System Administrator.
- 2 Select **Start > Settings > Control Panel > Add/Remove Programs**.
Result: The **Add/Remove Programs** window appears.
- 3 Select **HP 3PAR Host Explorer for Windows**.
- 4 Click **Remove**.

2.2.2 Deinstallation on Red Hat Linux Systems

To deinstall the Host Explorer agent from a Red Hat Linux system:

- 1 Log on as the root user.
- 2 Issue the following command:

```
rpm -e HostExplorer-<release_number>
```

2.2.3 Deinstallation on Solaris Sparc Systems

To deinstall the Host Explorer agent from a Solaris Sparc system:

- 1 Log on as the root user.
- 2 Issue the following command:

```
pkgrm HostExplorer
```

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Using the Host Explorer

The chapter provides instructions for using the HP 3PAR Host Explorer.

3.1 Verifying the Host Explorer Package is Installed

To verify that the Host Explorer package has been installed correctly, see the appropriate section below:

- To find out if the product is installed on a Solaris system, see *Verifying the Installation on Solaris Sparc Systems* on page 2.3.
 - To find out if the product is installed on a Linux system, see *Verifying the Installation on Red Hat Linux Systems* on page 2.3.
 - To find out if the product is installed on a Windows system, see: *Verifying the Installation on Microsoft Windows Server* on page 2.2.
-

3.2 Verifying the Host Explorer Process is Running

- ▶ To verify that the Host Explorer process is running, issue the `TpdHostAgent` status command.

Example output:

```
Printing the status of 3PAR Host Explorer daemon:  
3PAR Host Explorer is running..  
The current time interval values are:  
Value is PushInterval=86400 ← default  
Value is RefreshInterval=60 ← default
```

3.3 Stopping the Host Explorer Process

By default, the Host Explorer process starts at every reboot of the host.

- ▶ If you do not want the process running on the host, issue the `TpdHostAgent stop` command.

3.4 Starting the Host Explorer Process

- ▶ To start the Host Explorer process, issue the `TpdHostAgent start` command.

3.5 Supporting Multiple Storage Systems on a Single Host

The HP 3PAR Host Explorer reports the information it collects to every HP 3PAR StoreServ Storage system attached to the host. If a storage system is added or removed after the initial installation of the HP 3PAR Host Explorer, a refresh is needed.

- ▶ To refresh the Host Explorer process, issue the `TpdHostAgent refresh` command.

3.6 Supporting VMware Virtual Machines with iSCSI

The HP 3PAR Host Explorer supports VMware Virtual Machines connected to HP 3PAR StoreServ Storage systems with iSCSI connections. For information about supported operating systems on VMware Virtual Machines, refer to the HP 3PAR OS Configuration Matrix available on SPOCK.

3.7 The Host Explorer Enclosure Device LUN

When a host is connected to an HP 3PAR StoreServ Storage system, an enclosure device with LUN ID 254 is automatically defined for the host. The HP 3PAR Host Explorer uses this enclosure device to exchange information about the host with the storage system. The LUN with ID 254 acts as both a data LUN and an enclosure service LUN. You can use LUN ID 254 for any application with limited impact on performance. The level of impact on performance depends on the application. The LUN with ID 254 is presented to the host even when no virtual volumes are exported to the host, or when the host is not configured on the storage system.

3.7.1 Storage System Upgrades and Enclosure Devices

If you upgraded from a version of the HP 3PAR Operating System (OS) released before 2.3.1, you must consider the following notes about LUNs with ID 254.

- If you had a LUN with ID 254 before you upgraded the HP 3PAR OS, the host persona for the host is set to the Generic-Legacy persona number 6 during the upgrade process. The port persona number must be reset to Generic persona number 1 before the Host Explorer can communicate with the storage system.
 - 1) Use the HP 3PAR Command Line Interface (CLI) `sethost -persona 1 <host name>` command to set the host persona number to 1.
 - 2) Use the `controlport offline` command to take the HP 3PAR StoreServ Storage system port the host is connected to offline.
 - 3) Use the `controlport rst` command to reset the HP 3PAR StoreServ Storage system port connected to the host.

Alternatively, if you reboot the host after resetting the persona number as described in [step 1](#), the Host Explorer automatically discovers the enclosure device on LUN ID 254 and sends the information to the storage system. For more information about CLI commands, see the *HP 3PAR Command Line Interface Administrator's Manual*.

- If you add a host after you upgraded the InForm OS, the host persona number for the host must be set to 1. For more information about creating and modifying hosts, see the *HP 3PAR Command Line Interface Administrator's Manual*.

You can also use the HP 3PAR Management Console to configure and administer hosts connected to the storage systems. For more information, see the *HP 3PAR Management Console Online Help*.

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TpdHostAgent Command

The TpdHostAgent is a simple command line interface for maintaining and managing the various options to be used in conjunction with the Host Explorer daemon.

This command must be run as Superuser/Administrator from the host where it is installed.

4.1 TpdHostAgent Command

COMMAND

TpdHostAgent

DESCRIPTION

Command line utility for management of a HP 3PAR Host Explorer.

SYNTAX

TpdHostAgent [options]

OPTIONS

-start

Starts the Host Explorer process.

-stop

Stops the Host Explorer process.

`-refresh`

Stops, then restarts the Host Explorer process.

`-status`

Lists the status of a Host Explorer process, i.e. whether the daemon/service is running.

`-list`

Lists the contents of all host configuration information (Host Explorer tokens) that has been gathered by the Host Explorer.

`-push`

Immediately sends the latest Host Explorer token information to the HP 3PAR StoreServ Storage system.

`-set <RefreshInterval>|<PushInterval>`

Changes the default time intervals (`RefreshInterval = 60 seconds`, `PushInterval = 86,400 seconds`) used by the daemon to send token information to the HP 3PAR StoreServ Storage system.

- ◆ `RefreshInterval` - The interval that the Host Explorer process collects the data and compares it to the last known state for any changes. If there are changes, the Host Explorer pushes the new set of data to the HP 3PAR StoreServ Storage system.
- ◆ `PushInterval` - The interval that the Host Explorer process pushes data to HP 3PAR StoreServ Storage system.

`-settrace <1-5>`

This option is only available on the Windows operating system.

- ◆ 1 - Displays error messages.
- ◆ 2 - Display warning messages and all messages below this level.
- ◆ 3 - Displays information messages and all messages below this level.
- ◆ 4 - Displays verbose messages and all messages below this level.
- ◆ 5 - Displays debug messages and all messages below this level.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

Starting the Host Explorer daemon.

```
# TpdHostAgent start
Starting the HP 3PAR Host Explorer daemon ..
Starting HP 3PAR Host Explorer: [ OK ]
```

Checking the status of the Host Explorer daemon.

```
# TpdHostAgent status
Printing the status of HP 3PAR Host Explorer daemon:
HP 3PAR Host Explorer is running ...

The current time interval values are:
Value is PushInterval=86400
Value is RefreshInterval=60
```

Stopping the Host Explorer daemon.

```
# TpdHostAgent stop
Stopping the HP 3PAR Host Explorer daemon..
Stopping HP 3PAR Host Explorer: [ OK ]
```

Sending the latest Host Explorer token information to the HP 3PAR StoreServ Storage system.

```
# TpdHostAgent push
Sending the token information immediately
```

Listing the contents of all host configuration information (Host Explorer tokens) gathered by the Host Explorer.

```
TpdHostAgent list
Listing the Token information.
-----
```

```
TPDAGENTVER=2.1.0-0
HNAME=he13.ind.hp.com
HOSTID=9a0f0d34
OS=Linux
OSVER=2.6
OSPATCH=18-238.e15
ARCH=x86_64
IP=11.1.0.153
MPSW=device-mapper
MPSWVER=0.4.7-42.e15
HBA0WWN=10000000c9af018c
HBA0VEN=Emulex
HBA0MODEL=AJ763A/AH403A
HBA0DRVR=lpfc
HBA0DRVRVER=8.2.0.87.1p
HBA0FIRMWARE=1.11A5 (U3D1.11A5), sli-3
HBA0SPEEDCURRENT=4 Gbit
HBA1WWN=10000000c9af018d
HBA1VEN=Emulex
HBA1MODEL=AJ763A/AH403A
HBA1DRVR=lpfc
HBA1DRVRVER=8.2.0.87.1p
HBA1FIRMWARE=1.11A5 (U3D1.11A5), sli-3
HBA1SPEEDCURRENT=4 Gbit
HBA2WWN=iqn.1994-05.com.redhat:d29583fa2e2b
HBA2VEN=ISCSI
HBA2DRVRVER=2.6.18-238.e15
DEVICE0WWN=60002ac00000000000000b7800001515
```

```

DEVICE0NAME=mpath21
DEVICE0IOPOLICY=round-robin
DEVICE0FMPOLICY=path_checker
DEVICE0FPMINTERVAL=no_path_retry
DEVICE0TOTPATHCNT=2
DEVICE0GDPATHCNT=2
DEVICE0PATH0HWWN=10000000c9af018d
DEVICE0PATH0TWWN0=22510002ac000f50
DEVICE0PATH0TWWN0STATE=OK
DEVICE0PATH1HWWN=10000000c9af018c
DEVICE0PATH1TWWN0=23510002ac000f50
DEVICE0PATH1TWWN0STATE=OK
DEVICE1WWN=60002ac000000000000000b7800004242
DEVICE1NAME=mpath20
DEVICE1IOPOLICY=round-robin
DEVICE1FMPOLICY=path_checker
DEVICE1FPMINTERVAL=no_path_retry
DEVICE1TOTPATHCNT=2
DEVICE1GDPATHCNT=2
DEVICE1PATH0HWWN=10000000c9af018d
DEVICE1PATH0TWWN0=22510002ac000f50
DEVICE1PATH0TWWN0STATE=OK
DEVICE1PATH1HWWN=10000000c9af018c
DEVICE1PATH1TWWN0=23510002ac000f50
DEVICE1PATH1TWWN0STATE=OK

```

